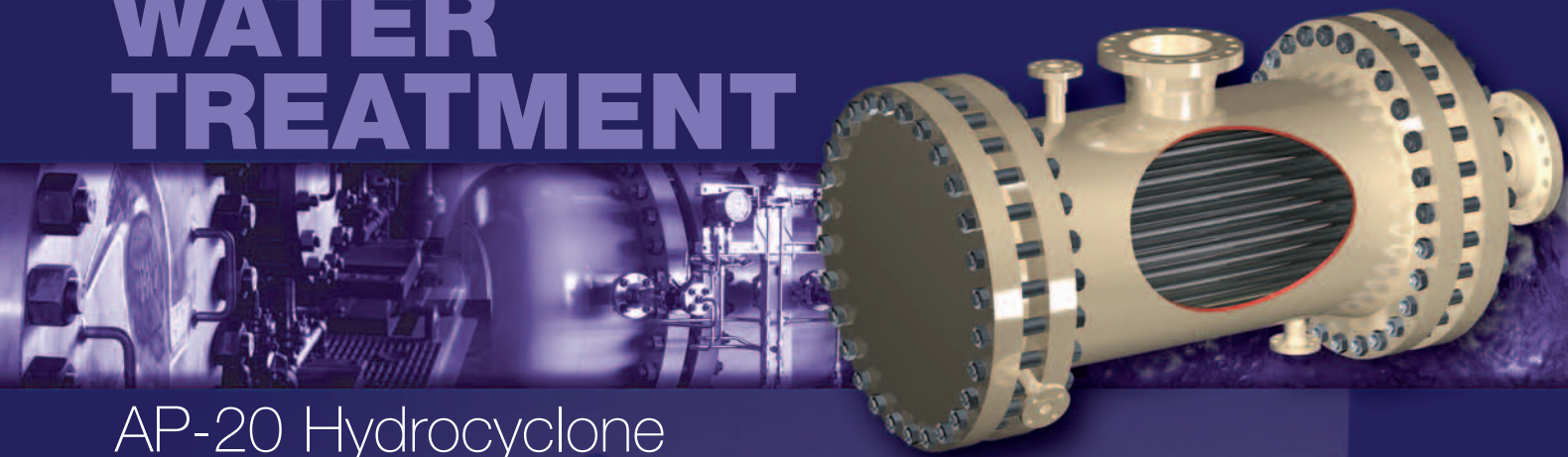


Alderley



PRODUCED WATER TREATMENT



AP-20 Hydrocyclone

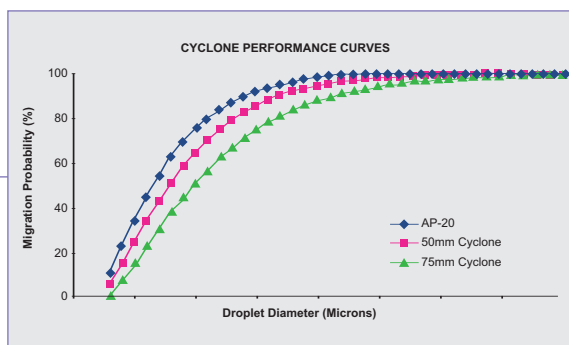
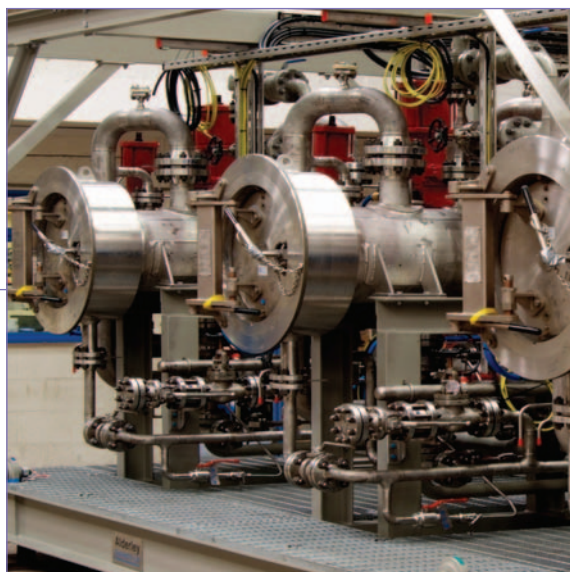
Engineering Success for the Oil, Gas and Petrochemical Industries

The AP-20 Liquid/Liquid Hydrocyclone

As a leading systems integrator Alderley utilises the latest equipment in the market place within our packages to ensure we provide the most cost effective and efficient solutions for all process conditions. To enable us to do this for our Produced Water Treatment Packages we are pleased to offer our own liquid/liquid hydrocyclone.

In the design of our own hydrocyclone it was necessary to provide the BAT (Best Available Technology) to meet the constantly reducing environmental discharge limits throughout the world.

Alderley have achieved this with the AP-20, which can reduce outlet levels of Oil-in-Water to less than half that of other hydrocyclone designs. The AP-20 has undergone extensive independent trials and is used widely offshore and onshore, proving it to be one of the most efficient liquid/liquid hydrocyclones available to the Oil & Gas Industry.



HYDROCYCLONE THEORY

Produced Water is channelled into the hydrocyclone head at a tangent to the wall. The multiple tangential inlet design coupled with a tapering internal geometry induces an accelerating vortex in the fluid as it flows down to the hydrocyclone outlet. The less dense oil is forced into a central core due to the high, induced centrifugal force. By careful differential pressure control the oily core is removed in a counter-current flow.

In the design of hydrocyclones the limiting criteria is the hydrocyclone diameter, which determines the centrifugal force and sets the droplet migration distance. Hence, the smaller the diameter of the hydrocyclone the greater the separation efficiency. However, due to internal fluid dynamics of the hydrocyclone there is a limit to the minimum diameter for optimum efficiency. Alderley have taken this all into account in the design of their latest hydrocyclone – The AP-20.

TYPICAL VESSEL CAPACITIES

The arrangement will vary to suit installation process conditions. All products can be customised for specific applications in order to provide the optimum design.

VESSEL DIAMETER (INCHES)	I/O NOZZLE SIZES (INCHES)	MAX FLOW RATE (BWPD)
4	2	1320
6	3	2640
8	4	5300
12	4	14500
16	6	25000
20	8	42500
24	8	63500
28	12	86000
32	12	117500
36	16	152000
40	16	190000
44	16	232000

PRODUCED WATER TREATMENT PACKAGES

The integration of complete systems to treat produced water from oil and gas processing is an important element of our business. Alderley have designed and built packages to meet the most stringent discharge limits. The designs can include one or more stages to treat up to 40% inlet oil-in-water, or down to 5ppm outlet oil-in-water at almost any temperature or pressure.

Success for the Oil and Gas Industries

ADVANTAGES OF THE AP-20 HYDROCYCLONE

- High efficiency design
- High on-line turndown
- High erosion resistance
- Compact vessel design
- Low fouling
- Minimal operator training/involvement
- Low CAPEX and OPEX
- Ideal for retrofitting and upgrade of existing systems
- Vertical or horizontal vessels
- Sectioned vessels available

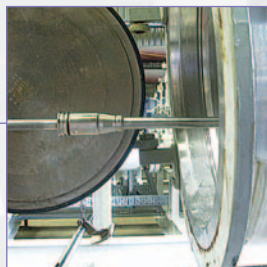
HYDROCYCLONE SPARES

Alderley have a dedicated team for the supply of spare parts. The AP-20 hydrocyclone can easily be adapted to fit most high efficiency hydrocyclone vessels. Whether it is for better erosion resistance, higher efficiency, or simply as a cost effective alternative, many of our clients buy their hydrocyclone spare parts direct from Alderley.



HYDROCYCLONE RETROFITS

With ever tightening discharge regulations and with higher produced water flowrates, operators are retrofitting old systems with new higher efficiency liners. Through careful design the AP-20 hydrocyclone is regularly fitted into many existing older vessels without removing the vessel and without any hot work.



Existing Vessels retrofitted with AP-20 liners for improved efficiency.

PILOT TRIALS

For system troubleshooting, and for straightforward performance trials, Alderley are always pleased to be able to offer the use of one of our AP-20 pilot plants. The units are compact and easy to install offshore, consisting of a single AP-20 hydrocyclone, instrumentation, valves, and sample points.





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